Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604567N *I Ship Contract Design/ Live Fire T&E*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	569.229	39.459	38.925	65.002	-	65.002	67.591	69.901	53.871	56.267	Continuing	Continuing
1803: *Ship Contract Design*	122.308	2.639	8.049	2.209	-	2.209	3.870	3.212	3.286	3.356	Continuing	Continuing
2465: *LHA(R) FLT Design and Total Ship Integration*	234.858	7.116	8.508	9.488	-	9.488	8.095	14.572	2.404	6.013	Continuing	Continuing
3108: *CVN 80 Total Ship Integration*	0.000	0.000	1.000	30.103	-	30.103	32.910	31.908	27.607	25.873	Continuing	Continuing
3179: *CVN-79 Total Ship Integration*	153.772	18.499	13.387	17.081	-	17.081	16.810	14.729	15.069	15.392	Continuing	Continuing
3369: *Hybrid Electric Drive*	0.000	7.814	3.773	1.691	-	1.691	1.503	1.439	1.374	1.412	Continuing	Continuing
3374: *MPF(F)*	0.000	0.000	0.000	0.694	-	0.694	0.463	0.000	0.000	0.000	0.000	1.157
4007: *CVN 21 LFT&E*	58.291	3.391	4.208	3.736	-	3.736	3.940	4.041	4.131	4.221	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 333, 223

A. Mission Description and Budget Item Justification

This Program Element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of engineering, programmatic and acquisition documentation including ship specifications (including performance specifications) and contractual documentation associated with acquisition of Navy ships. This PE also supports the Congressionally mandated Live Fire Test and Evaluation (LFT&E) program for new ship designs.

Contract Design has traditionally been the engineering development of the technical and contractual definition of the ship design (including ship specifications and drawings) to a level of detail sufficient for shipbuilders to make a sound estimate of the construction cost and schedule. Additionally, the contract design package developed under this PE has provided the technical baseline from which the Navy selects the shipbuilder who then develops the detail design package required to support the construction and eventual delivery of the ship. This PE also supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions, and supports engineering planning and ship affordability studies.

Under Acquisition Reform for new design ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering Integrated Product and Process Development (IPPD) process extending through and after contract award. This serves to maintain the focus of multi-discipline teams consisting of the government,
shipbuilder, system programs, and suppliers. Government/Industry Integrated Product Team(s) (IPTs) will utilize the IPPD process to develop the design in an Integrated Product and Data Environment (IPDE). The design approach is part of an acquisition strategy that is based on commercial practices and incorporates a phased technical definition.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604567N *I Ship Contract Design/ Live Fire T&E*

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	40.016	49.712	40.880	-	40.880
Current President's Budget	39.459	38.925	65.002	-	65.002
Total Adjustments	-0.557	-10.787	24.122	-	24.122
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.787			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.557	0.000			
• Program Adjustments	0.000	0.000	26.741	-	26.741
• Rate/Misc Adjustments	0.000	0.000	-2.619	-	-2.619

Change Summary Explanation

Decrease in Ship Contract Design/Live Fire T&E by $0.565 million as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Cost/Funding:

Project 2465: Funding increase is to support for LHA 6 LFT&E Requirements.

Project 3179: Realigned FY 15 funding from Project 2465 to support increased Design for Affordability efforts on CVN 79

Project 3108: Added additional funding for CVN 78-class cost reduction efforts

Project 3374: Beginning in FY 2017, efforts previously financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3110 (Maritime Prepositioning Force Future) are financed under this program element. FY 2015 NDSF BA 04 Project 3110 amount: $8.454M. FY 2016 NDSF BA 04 Project 3110 amount: $1.768M. This project is not a new start.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 1803 / *Ship Contract Design*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1803: *Ship Contract Design*	122.308	2.639	8.049	2.209	-	2.209	3.870	3.212	3.286	3.356	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DDG Modernization:
The major effort is the engineering development of the technical and contractual definition of the ship's design (e.g. ship specifications and drawings), with sufficient details for the planning yard to make a sound estimate of cost and schedule. It also serves as the technical definition from which the planning yard develops the detailed design and testing package required to build and test the ship. It provides the Navy with a digital, ship design knowledge base, including lessons learned, required to ensure that a proper development, analysis and evaluation can be conducted of any current or future planned.

Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria
and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations. This project also supports ship survivability studies, superstructure integrity analysis, developmental and operational testing, gun weapon system software integration and next generation Machinery Control System (MCS) software integration.

Expeditionary Mobile Base (ESB) (formerly MLP AFSB)
Funds are for performance specification development, and Dynamic Interface Testing for various airframes as part of the ESB Special Operations Forces (SOF) Backfit.

TFCA - NAVSEA Boundary Defense Capability:
Computer security upgrades and mitigation for operating machinery, machinery controllers, and machinery control systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Ship Contract Design	2.639	2.299	2.209	0.000	2.209
Articles:	-	-	-	-	-
FY 2015 Accomplishments: For DDGs, specific efforts include, but are not limited to Engineering Analysis, feasibility studies, structural analysis for hull integrity, and topside analysis related to the next generation MCS software integration and GEDMS .					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 1803 / *Ship Contract Design*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
CG Class specific efforts include, but are not limited to; aluminum cracking studies and superstructure repair planning to ensure CGs are able to reach expected service life and developmental and operational test events related to Baseline 9. Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations. ***FY 2016 Plans:*** For DDGs, specific efforts include, but are not limited to Engineering Analysis, feasibility studies, structural analysis for hull integrity, and information assurance requirements related to the next generation MCS software integration. CG Class specific efforts include, but are not limited to, aluminum cracking studies, superstructure repair planning, sustainment studies, extended service life studies, and new alteration development to ensure CGs are able to reach expected service life as well as information assurance requirements related to the Integrated Ship Control system. Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations. ***FY 2017 Base Plans:*** Continue ship design and alteration development for superstructure cracking/aluminum sensitization in CG's and for DDG 51 Flt IIA ship design to include development of structural reliability and other alterations to include helo hangar door reliability improvements in FY 17. ***FY 2017 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 1803 / *Ship Contract Design*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: ESB ***Articles:*** ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** Performance Spec development and Dynamic Interface Testing for Expeditionary Mobile Base (ESB) 3 (formerly MLP AFSB 3) SOF Equipment (MH-60, AH-6 and CH-47), Dynamic Interface Testing/AVCERT (for CV22 and MQ-8C) and SESEF/EMC Testing in support of SOF backfit efforts. ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A	0.000 -	3.750 -	0.000 -	0.000 -	0.000 -
Title: Boundary Defense Capability ***Articles:*** ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** Begin efforts to implement external boundary cyber defense capability. ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A	0.000 -	2.000 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	2.639	8.049	2.209	0.000	2.209

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 1803 / *Ship Contract Design*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN 0900: *DDG Mod*	324.219	421.195	367.766	-	367.766	636.893	585.026	585.003	658.303	4,517.590	9,611.783
• WPN 4223: *Cruiser Modernization Weapons*	38.800	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	263.060
• OPN 0960: *CG Modernization*	375.500	0.000	0.000	-	0.000	0.000	0.000	0.000	116.317	0.000	2,586.335

Remarks

D. Acquisition Strategy

Continuing systems and software development for both development models and production machinery control units at Land Based Engineering Sites.

E. Performance Metrics

CG:
Aluminum sensitization study to determine the lifetime until sensitization for aluminum alloys and stress and buckling analysis of the CG 47 Class ship structure, and develop proposed fatigue fixes in the high stress areas to produce a technical report with modifications or improvements to the ship that may be necessary to preclude cracking in the areas of concern. Evaluation of composite patch and development of composite patch installation procedures as a method for repairing cracks. Development of ultrasonic impact treatment guidance as a method for repairing cracks. Evaluation of different coating that can prevent cracking and different aluminum alloys that are sensitization resistant. Additionally, review and track distributed services margins, predict future system loads, develop technical reports and make recommendation to ensure reaching hull service life.

DDG Modernization:
Efforts for DDG Mod include design and development for next generation MCS software integration.

ESB:
Completion of Dynamic Interface Testing.

Task Force Cyber Awareness (TFCA):
NAVSEA Boundary Defense Capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 1803 / *Ship Contract Design*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CG Mod Electronics Systems Eng	C/CPAF	Lockheed : Martin, Moorestown, NJ	17.413	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DON Energy Initiative - OEM	C/FPIF	L-3 Maritime Systems : Leesburg, VA	34.857	0.000		0.000		0.000		-		0.000	0.000	34.857	-
DON Energy Initiative	WR	NSWC/SSES : Philadelphia, PA	3.629	0.000		0.000		0.000		-		0.000	0.000	3.629	-
Engineering Development and Design	Various	COTF/NAVAIR/ NSWCCD/ NSWCDD/NSWCPC/ NSWCPHD/ NSWCSSES : DC/ MD/PA/CA	1.085	0.000		0.000		0.000		-		0.000	0.000	1.085	-
Preliminary and Contract Design	C/FPIF	NASSCO : San Diego, CA	6.500	0.000		0.000		0.000		-		0.000	0.000	6.500	-
Hybrid Electric Drive	C/CPIF	L-3 Maritime Systems : Leesburg, VA	6.911	0.000		0.000		0.000		-		0.000	0.000	6.911	-
Hybrid Electric Drive	C/CPAF	Rolls Royce : Walpole, MA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Hybrid Electric Drive	C/CR	General Atomics : San Diego, CA	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	-
Hybrid Electric Drive	C/CPAF	Herren Engineering : Alexandria, VA	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	-
Hybrid Electric Drive	C/CPAF	Syntek : Arlington, VA	0.099	0.000		0.000		0.000		-		0.000	0.000	0.099	-
Hybrid Electric Drive	WR	NSWC/SSES : Philadelphia, PA	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	-
Hybrid Electric Drive	TBD	Not Specified : Not Specified	8.500	0.000		0.000		0.000		-		0.000	0.000	8.500	-
		Subtotal	80.484	0.000		0.000		0.000		-		0.000	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 1803 / *Ship Contract Design*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG/CGM Program / Engineering Spt	WR	NSWC/DD : Dahlgren, VA	4.376	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM Program/ Engineering Spt	Various	SUPSHIP/BATH : Bath, ME	3.331	0.000		0.000		0.350	Jan 2017	-		0.350	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	CSC/BAE : Hampton, VA	4.713	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	WR	SPAWARSYSCEN : Charleston, SC	1.397	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	WR	NRL : Washington, DC	0.617	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	C/CPAF	JJMA/ALION : Washington, DC	2.947	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	Lockheed Martin : Moorestown, NJ	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
DDG/CGM Program / Engineering Spt	WR	NSWC/PHD : Port Hueneme, CA	2.889	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	CSC : Washington DC	0.085	0.000		0.000		0.000		-		0.000	0.000	0.085	-
CGM/DDG Program / Engineering Spt	WR	COMOPTEVFOR : Norfolk, VA	0.420	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM/HED Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	4.900	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	1.115	2.389	Dec 2014	2.147	Feb 2016	1.599	Jan 2017	-		1.599	0.000	7.250	-
HED Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
HED	C/CPAF	L-3 Maritime Systems : Leesburg, VA	1.048	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CG Program / Engineering Spt	WR	NSWC/BETHESDA : Bethesda, MD	9.256	0.050	Dec 2014	0.051	Feb 2016	0.100	Jan 2017	-		0.100	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 1803 / *Ship Contract Design*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CG Program / Engineering Spt	Various	SUPSHIP/ PASCAGOULA : Pascagoula, MS	4.230	0.200	Dec 2014	0.101	Feb 2016	0.160	Jan 2017	-		0.160	Continuing	Continuing	Continuing
ESB	Various	TBD : TBD	0.000	0.000		3.750	Jan 2016	0.000		-		0.000	0.000	3.750	-
NAVSEA Boundary Defense Capability	Various	TBD : TBD	0.000	0.000		2.000	Mar 2016	0.000		-		0.000	0.000	2.000	-
		Subtotal	41.824	2.639		8.049		2.209		-		2.209	-	-	-

Remarks

Award dates for ESB reflects initial date of incremental funding execution in support of ESB SOF MOD backfit efforts.

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	122.308	2.639		8.049		2.209		-		2.209	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		**Date:** February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 1803 / *Ship Contract Design*

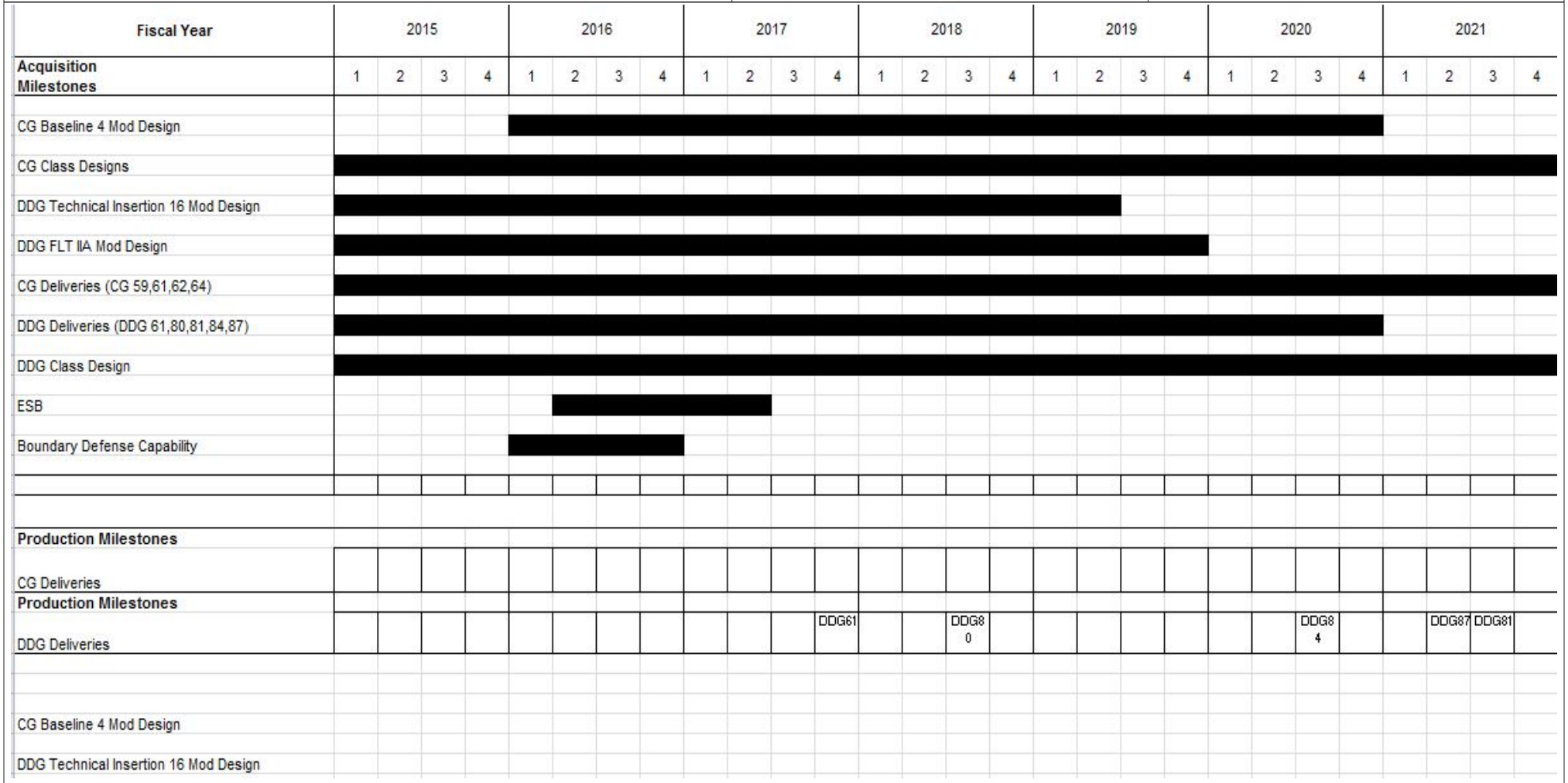


Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 1803 / *Ship Contract Design*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1803				
CGM Baseline 4 Mod Design	1	2016	4	2020
CG Class Design	1	2015	4	2021
DDG Technical Insertion 16 Mod Design	1	2015	4	2019
DDG FLT IIA Mod Design	1	2015	2	2019
CG Deliveries (CG 59,61,63,64)	3	2015	4	2021
DDGM Deliveries (DDG 61,80,81,84,87)	1	2015	3	2021
DDG Class Design	1	2015	4	2021
ESB Dynamic Interface Testing	2	2016	2	2017
ESB Performance Spec Development for SOF MOD Backfit	2	2016	2	2016
Boundary Defense Capability	1	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*				Project (Number/Name) 2465 / *LHA(R) FLT Design and Total Ship Integration*			
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
2465: *LHA(R) FLT Design and Total Ship Integration*	234.858	7.116	8.508	9.488	-	9.488	8.095	14.572	2.404	6.013	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 333

A. Mission Description and Budget Item Justification

The increase in funding from FY 16 to FY 17 is due to increased developmental, operational, and live fire testing on LHA 6 in FY 17.

This project provides the contract design, development and testing efforts for the Amphibious Assault Ship Replacement Program LHA(R). The LHA (R) is a ship construction program designed to: (1) provide a functional replacement for the Amphibious Assault Ships which reached the end of their extended service lives in FY15 (2) be a key platform in the Amphibious Readiness Group (ARG) of the future and (3) provide for an affordable and sustainable amphibious ship development program. LHA(R) ships will provide forward presence and power projection as an integral part of Joint, inter-agency, and multi-national maritime expeditionary forces. Additionally, LHA(R) will be designed to operate for sustained periods in transit to and operations in an Amphibious Objective Area to include the embarkation, deployment, and landing of a Marine Landing Force in an assault by helicopters and tilt rotors (MV-22) supported by Joint Strike Fighters (F-35B).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Title: LHA (R) FLT 0 Design and Total Ship Integration - LHA 6	2.792	3.098	7.022	0.000	7.022
Articles:	-	-	-	-	-
FY 2015 Accomplishments: LHA 6 Continued Development Testing (DT-B3). LHA 6 Continued Test and Evaluation Master Plan (TEMP) Rev B. LHA 6 Continued Operational Test and Evaluation (OT&E). LHA 6 Continued evaluating the interoperability data supporting Key Performance Parameters (KPP). LHA 6 Continued Vulnerability Assessment Report I (VAR I). LHA 6 Initiated Final Vulnerability Assessment Report (VAR). LHA 6 Continued Total Ship Survivability Trial (TSST) preparations. LHA 6 Continued LHA Class Reliability Maintainability and Availability (RMA).					
FY 2016 Plans: LHA 6 Continue Development Testing (DT-B3). LHA 6 Complete Test and Evaluation Master Plan (TEMP) Rev B. LHA 6 Continue Operational Test and Evaluation (OT&E).					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 2465 / *LHA(R) FLT Design and Total Ship Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
LHA 6 Continue evaluating the interoperability data supporting Key Performance Parameters (KPP). LHA 6 Complete Vulnerability Assessment Report I (VAR I). LHA 6 Continue Final Vulnerability Assessment Report (VAR). LHA 6 Continue Total Ship Survivability Trial (TSST) preparations. LHA 6 Continue LHA Class Reliability Maintainability and Availability (RMA). ***FY 2017 Base Plans:*** LHA 6 Complete Development Testing (DT-B3). LHA 6 Complete Operational Test and Evaluation (OT&E). LHA 6 Complete evaluation of the interoperability data supporting Key Performance Parameters (KPP). LHA 6 Complete Final Vulnerability Assessment Report (VAR). LHA 6 Complete Total Ship Survivability Trial (TSST). LHA 6 Continue LHA Class Reliability Maintainability and Availability (RMA). ***FY 2017 OCO Plans:*** N/A					
Title: LHA (R) FLT 1 Design and Total Ship Integration - LHA 8	4.324	5.410	2.466	0.000	2.466
Articles:	-	-	-	-	-
FY 2015 Accomplishments: LHA 8 Continued Milestone Documentation, Gate Reviews and Defense Acquisition Board (DAB) Program Reviews. LHA 8 Completed Early Industry Involvement. LHA 8 Completed Early Operational Assessment effort. LHA 8 Continued Operational Test and Evaluation (OT&E) preparations. LHA 8 Continued Test and Evaluation Master Plan (TEMP) Rev B. LHA 8 Continued Vulnerability Assessment Report (VAR). LHA 8 Completed Contract Design. LHA 8 Issued Advance Procurement RFP for Advance Procurement & Detail Design. LHA 8 Awarded Advance Procurement for Systems Engineering. ***FY 2016 Plans:*** LHA 8 Complete Advance Procurement for Systems Engineering. LHA 8 Complete Milestone Documentation, Gate Reviews and Defense Acquisition Board (DAB) Program Reviews.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 2465 / *LHA(R) FLT Design and Total Ship Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
LHA 8 Continue Operational Test and Evaluation (OT&E) preparations. LHA 8 Complete Test and Evaluation Master Plan (TEMP) Rev B. LHA 8 Continue Vulnerability Assessment Report (VAR). LHA 8 Begin Enterprise Air Search Radar (EASR) integration efforts. LHA 8 Issue Advance Procurement Award for Detail Design & Long Lead Time and Materials. ***FY 2017 Base Plans:*** LHA 8 Initiate Reliability Availability Maintainability analysis. LHA 8 Continue Vulnerability Assessment Report (VAR). LHA 8 Continue Air Search Radar integration efforts. LHA 8 Continue Operational Test & Evaluation preparation for Operational Assessment (OA). ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	7.116	8.508	9.488	0.000	9.488

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN/3041: *LHA (R) Ships*	29.093	476.543	1,623.024	-	1,623.024	1,678.512	0.000	0.000	0.000	0.000	10,224.072

Remarks

D. Acquisition Strategy

Acquisition strategy signed February 7, 2005 approved strategy for sole source to Northrop Grumman Shipbuilding (NGSB) (Now Huntington Ingalls Industries, Inc.) to incorporate previous LHD engineering, design and producibility lessons-learned into LHA(R). Advanced Procurement (AP) contract for Long Lead-Time Material (LLTM) procurement and engineering support awarded July 05 with continuation of these efforts in FY06 prior to award of Detail Design and Construction (DD&C) contract on 1 June 2007. The AP contract was subsumed by the FPI DD&C contract.

LHA 7 DD&C contract awarded on May 31, 2012.

LHA 8 is the lead ship in FLT 1, which reincorporates the well deck. AP started 2QTR FY15 to support FY17 DD&C award.

E. Performance Metrics

Successfully achieve Initial Operational Capability, successfully complete Operational Test and Milestone Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 2465 / *LHA(R) FLT Design and Total Ship Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Design	WR	NSWC : Various	97.905	0.000		0.000		0.000		-		0.000	0.000	97.905	-
Ship Design	C/CPFF	HII : Pascagoula, MS	5.009	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Ship Design	C/CPFF	Various : Various	36.094	3.639	Dec 2014	4.536	Dec 2015	1.692	Dec 2016	-		1.692	5.007	50.968	-
Special Studies	WR	NSWC : Panama City, FL	4.800	0.000		0.000		0.000		-		0.000	0.000	4.800	-
		Subtotal	143.808	3.639		4.536		1.692		-		1.692	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	JITC : Fort Huachuca, AZ	4.231	0.097	Dec 2014	0.081	Dec 2015	0.154	Dec 2016	-		0.154	0.200	4.763	-
Operational Test & Evaluation	WR	OPTEVFOR/ MCOTEA/NAVSUP : Norfolk, VA/ Quantico, VA	15.504	1.086	Dec 2014	1.668	Dec 2015	3.403	Dec 2016	-		3.403	7.296	28.957	-
Live Fire Test & Evaluation	WR	NSWC : Various	56.497	1.109	Dec 2014	1.237	Dec 2015	3.589	Dec 2016	-		3.589	4.038	66.470	-
		Subtotal	76.232	2.292		2.986		7.146		-		7.146	11.534	100.190	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPFF	Various : Various	14.175	1.135	Dec 2014	0.936	Dec 2015	0.608	Dec 2016	-		0.608	1.000	17.854	-
Travel	Various	Navsea Travel : Washington, DC	0.632	0.050	Jun 2015	0.050	Dec 2015	0.042	Dec 2016	-		0.042	0.090	0.864	-
Defense Acquisition Workforce	Various	Various : Various	0.011	0.000		0.000		0.000		-		0.000	0.000	0.011	-
		Subtotal	14.818	1.185		0.986		0.650		-		0.650	1.090	18.729	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 2465 / *LHA(R) FLT Design and Total Ship Integration*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	234.858	7.116		8.508		9.488		-		9.488	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 2465 / *LHA(R) FLT Design and Total Ship Integration*

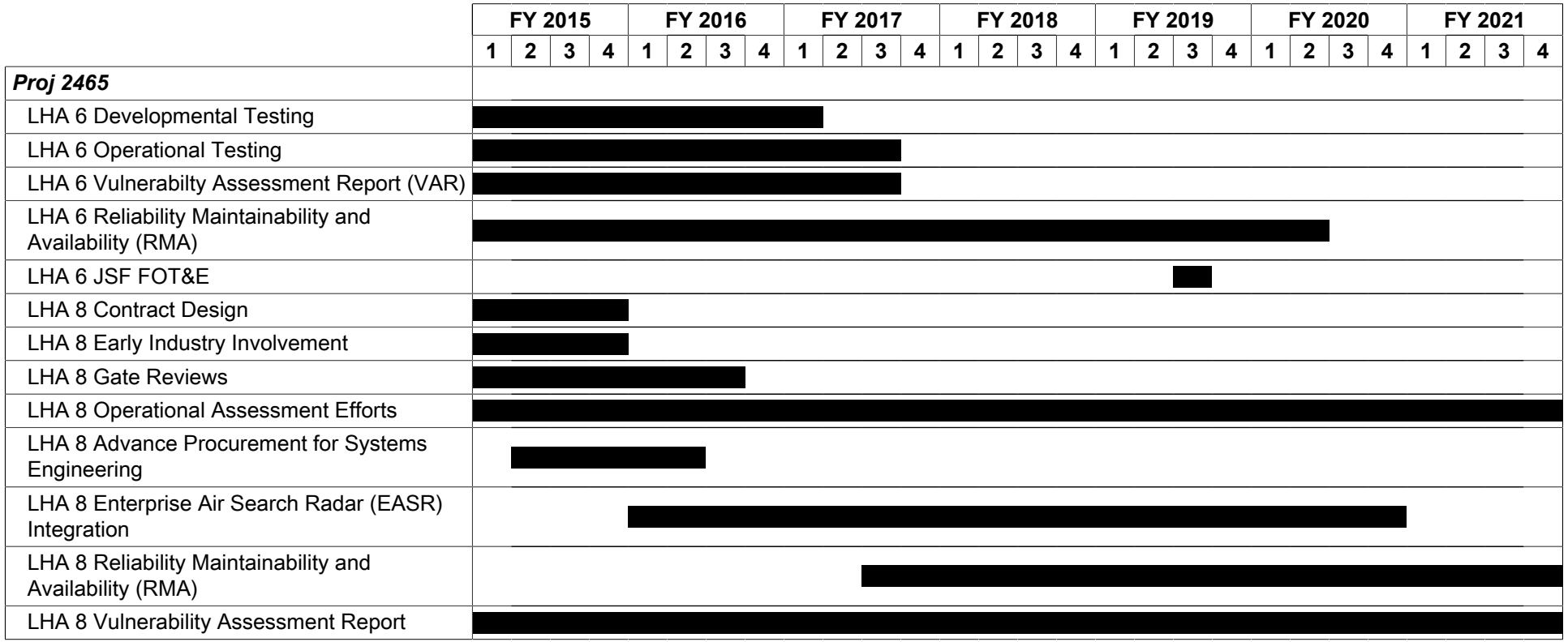


Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 2465 / *LHA(R) FLT Design and Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2465				
LHA 6 Developmental Testing	1	2015	1	2017
LHA 6 Operational Testing	1	2015	3	2017
LHA 6 Vulnerabilty Assessment Report (VAR)	1	2015	3	2017
LHA 6 Reliability Maintainability and Availability (RMA)	1	2015	2	2020
LHA 6 JSF FOT&E	3	2019	3	2019
LHA 8 Contract Design	1	2015	4	2015
LHA 8 Early Industry Involvement	1	2015	4	2015
LHA 8 Gate Reviews	1	2015	3	2016
LHA 8 Operational Assessment Efforts	1	2015	4	2021
LHA 8 Advance Procurement for Systems Engineering	2	2015	2	2016
LHA 8 Enterprise Air Search Radar (EASR) Integration	1	2016	4	2020
LHA 8 Reliability Maintainability and Availability (RMA)	3	2017	4	2021
LHA 8 Vulnerability Assessment Report	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 3108 / *CVN 80 Total Ship Integration*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3108: *CVN 80 Total Ship Integration*	0.000	0.000	1.000	30.103	-	30.103	32.910	31.908	27.607	25.873	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 223

A. Mission Description and Budget Item Justification

The increase from FY 16 to FY 17 is due to increased integration efforts in Enterprise Air Surveillance Radar and beginning CVN 78 class Design for Affordability efforts in FY 17.

Development and related testing of CVN 78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 80. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78 or CVN 79. All systems developed in this project have the potential to support emerging requirements and other promising system technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 80 procurement, including, but not limited to engineering support, programmatic and program support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Enterprise Air Surveillance Radar (EASR)	0.000	1.000	8.489	0.000	8.489
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Conduct/prepare risk analysis/reports: changes and risk of change to CVN 79/80 baseline. Execute Requirements Engineering, Architecture: radar and infrastructure requirements, test planning, and continue the architecture model database including incorporating CVN-78 design updates and evaluate impacts (physical/ logical) for system deferral, upgrades, and elimination items. Combat System Testing; conduct test site survey for EASR and EASR Radar Suite elements and integration testing. Conduct study to determine moving CANES					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
to Phase 2 with minimal impact to ship installation and key events. Evaluate and incorporate CFE Networks as part of the DoD Risk Management Framework to support Cyber Security Requirements. ***FY 2017 Base Plans:*** Continue conducting / preparing risk reduction studies / reports, to include development of a risk / opportunity database to support future-decision making. Continue conducting technology assessment studies. Execute Requirements Engineering and Architecture, including creating a radar specification traceability matrix to the CVN ORD and development and maintenance of a new CVN Warfare System architecture. Conduct ship integration studies for GFI vetting, tracking and delivery. Continue conducting onboard and off-board EMI / EMC studies due to new the radar sensor. Continue analyzing / performing integrated topside design due to new radar sensor. Conduct power interface trade studies based upon radar prime power requirement and conduct trade studies to analyze platform power against transformer design and platform power against cost of ship modification. Continue conducting system integration studies related to the TEMP: platform impacts & updates to TEMP; cybersecurity analysis; ISP updates supporting Net Ready KPP. Continue conducting RMA and ILS Studies, to include trade studies and identification of investment opportunities / requirements. Continue preparing / updating acquisition support documents, cost estimates and the RFP. ***FY 2017 OCO Plans:*** N/A					
Title: CVN 78 Class Design for Affordability (DFA) ***Articles:*** ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Conduct or support feasibility and tradeoff studies on new and modified shipboard systems and equipment. Studies shall include engineering analyses, including KPP impact assessments; identification of subsystem, integration, logistics, and testing impacts; material procurement; preliminary cost estimates for decision making purposes; development of potential contract change documentation; conducting / supporting ship checks; developmental testing; and report development and submission. Discover and assess CVN 78 Class DFA initiatives. Develop cost-saving initiatives, game changers, business case analyses, and DFA initiatives to	0.000 -	0.000 -	21.614 -	0.000 -	21.614 -

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
continue to drive affordability into the carrier program. Perform CVN 80-specific engineering calculations and technical analysis in the areas of technical performance measures, system component calculations, environmental safety and health, and human factors engineering, survivability, and vulnerability, automation systems software, shock and vibration, and engineered components support. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	1.000	30.103	0.000	30.103

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN / 2001: *Carrier Replacement Program*	1,219.425	2,431.929	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	Continuing	Continuing
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	60.459	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,526.813
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	663.000	123.760	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,374.860
• RDTEN / 0604112N: *Project Units 2208, 4004*	46.308	98.105	70.528	-	70.528	96.339	83.499	43.653	26.693	Continuing	Continuing
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	4.788	38.389	14.111	-	14.111	4.844	3.844	3.918	4.001	Continuing	Continuing
• RDTEN / 0604501N: *Project Unit 3236 Advanced Radar Technology*	0.589	23.301	68.037	-	68.037	68.411	27.601	0.000	0.000	0.000	187.939
• OPN /5664: *Surface Training Equipment*	0.000	0.000	4.733	-	4.733	4.010	0.000	0.000	0.000	0.000	8.743

Remarks

D. Acquisition Strategy

The CVN 80 is the third ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class Carriers. The CVN 80 is a modified repeat of the CVN 78, which features a new nuclear propulsion and electrical generation / distribution system, electromagnetic aircraft launching system, advanced arresting gear system, electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war-

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability / flexibility, increased operational availability, and increased flexibility to support future upgrades.

CVN 80 will use late integration of Government-Furnished Equipment to provide the latest combat system and C4I suite applications within the planned system baseline. CVN 80 will improve upon processes used on CVN 78 to gain efficiencies during the CVN 80 Construction Preparation and Construction periods.

E. Performance Metrics

Successfully initiate the following tasks: 1) Development of risk impact statements, 2) Radar specification and traceability to test documents and 3) Development and maintenance of new CVN Warfare System architecture database.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Design & Development	C/CPAF	HII : VA	0.000	0.000		0.000		18.100	Nov 2016	-		18.100	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPAF	RAYTHEON : VA	0.000	0.000		0.454	Feb 2016	3.910	Nov 2016	-		3.910	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC DAHLGREN : VA	0.000	0.000		0.301	Feb 2016	2.536	Nov 2016	-		2.536	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC CARDEROCK : MD	0.000	0.000		0.000		1.485	Nov 2016	-		1.485	0.000	1.485	-
Advanced Design & Development	C/CPFF	NAVSEA SEAPORT : DC	0.000	0.000		0.000		2.162	Nov 2016	-		2.162	0.000	2.162	-
Advanced Design & Development	C/BA	NAWCAD PAX RIVER : MD	0.000	0.000		0.000		0.806	Nov 2016	-		0.806	0.000	0.806	-
Advanced Design & Development	WR	SPAWAR : CA	0.000	0.000		0.245	Feb 2016	0.000		-		0.000	0.000	0.245	-
Advanced Design & Development	Various	MISCELLANEOUS : VARIOUS	0.000	0.000		0.000		1.104	Nov 2016	-		1.104	0.000	1.104	-
		Subtotal	0.000	0.000		1.000		30.103		-		30.103	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		1.000		30.103		-		30.103	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		**Date:** February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

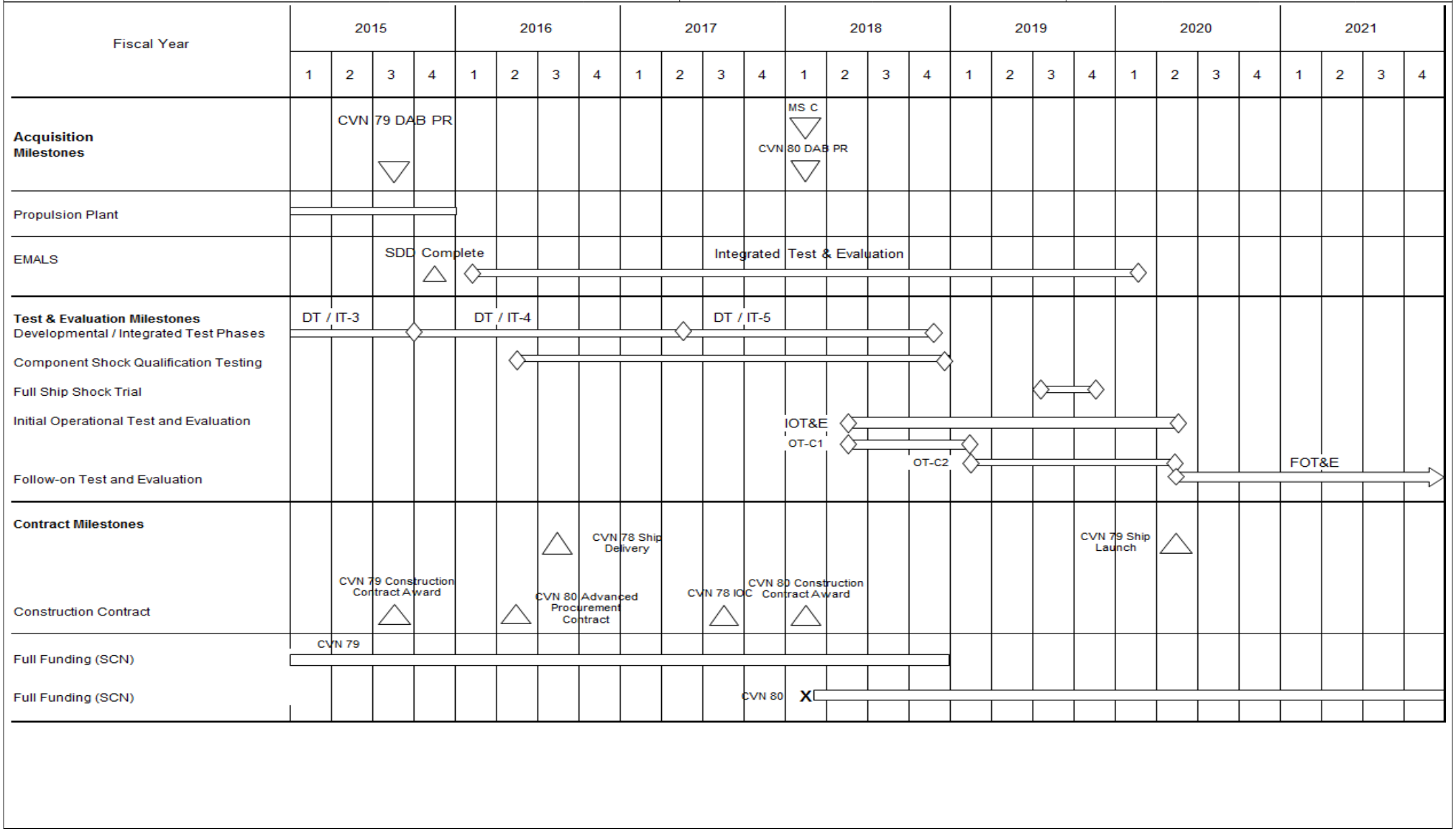


Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3108				
CVN 79 DAB PR	3	2015	3	2015
CVN 80 DAB PR	1	2018	1	2018
Milestone C	1	2018	1	2018
Propulsion Plant	1	2015	4	2015
EMALS SDD Complete	4	2015	4	2015
EMALS Integrated Test & Evaluation (IT&E)	1	2016	1	2020
DT/IT -3- Developmental Test / Integrated Test Phase 3	1	2015	3	2015
DT/IT -4- Developmental Test / Integrated Test Phase 4	4	2015	2	2017
DT/IT -5- Developmental Test / Integrated Test Phase 5	2	2017	4	2018
Component Shock Qualification Testing	2	2016	4	2018
Full Ship Shock Trial	3	2019	4	2019
Initial Operational Test & Evaluation	2	2018	2	2020
OT-C1 - Initial Operational Test & Evaluation - Phase C1	2	2018	1	2019
OT-C2 - Initial Operational Test & Evaluation - Phase C2	1	2019	2	2020
FOT&E - Follow-On Test & Evaluation	2	2020	4	2021
CVN 78 Ship Delivery	3	2016	3	2016
CVN 78 Initial Operational Capability (IOC)	3	2017	3	2017
CVN 79 Construction Contract Award	3	2015	3	2015
CVN 80 Advanced Procurement Contract Award	2	2016	2	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2015	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3108 / *CVN 80 Total Ship Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CVN 79 Ship Launch	2	2020	2	2020
CVN 80 SCN Full Funding	1	2018	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 3179 / *CVN-79 Total Ship Integration*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3179: *CVN-79 Total Ship Integration*	153.772	18.499	13.387	17.081	-	17.081	16.810	14.729	15.069	15.392	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 223

A. Mission Description and Budget Item Justification

Development and related testing of CVN 78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 79. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 79 procurement, including, but not limited to, engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment. In addition, this project focuses on significant procurement and life cycle cost reduction compared to the first ship of the class. Cost reductions are sought, developed and implemented in the areas of design, labor and material.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CVN-79 Total Ship Integration	18.499	13.387	17.081	0.000	17.081
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued to identify and develop cost reduction measures, including Design for Affordability (DFA) efforts that enhance affordability via technology initiatives, producibility improvements and production efficiencies. Integrated the unique maintenance, storage and handling requirements to deploy with the F-35C. Assessed design, equipment and system changes between CVN 78 and CVN 79 to identify candidate equipment and / or systems that may require Follow-on Test and Evaluation. Completed the CVN 78 Class shock and vibration testing. Addressed design and construction issues based on the results of CVN 78 testing. Continued to manage fact-of-life and obsolescence changes on government furnished equipment systems.					
FY 2016 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3179 / *CVN-79 Total Ship Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue to develop cost reduction measures in support of CVN 79 and follow-on ship affordability. Assess design and process changes to further address JP-5 CRES piping system integrity. Continue to integrate the unique maintenance, storage and handling requirements to deploy with the F-35C. Continue to address design, equipment, and system changes between CVN 78 and CVN 79 to identify candidate equipment and / or systems that may require Follow-on Test and Evaluation (FOT&E). Continue to address design and construction issues based on the results of CVN 78 testing. Continue to manage fact-of-life and obsolescence changes on government furnished equipment systems. ***FY 2017 Base Plans:*** Continue to address design, equipment, and system changes between CVN 78 and CVN 79 to identify candidate equipment and / or systems that may require FOT&E. Continue to address design and construction issues based on the results of CVN 78 testing. Continue to manage fact-of-life and obsolescence changes on government furnished equipment systems. Initiate CVN 79 Phase II study to develop a strategy to efficiently transition from Phase I construction to Phase II and final delivery of CVN 79. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	18.499	13.387	17.081	0.000	17.081

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	60.459	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,526.813
• SCN / 2001: *Carrier Replacement Program*	1,219.425	2,431.929	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	Continuing	Continuing
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	663.000	123.760	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,374.860
• RDTEN / 0604112N: *Project Units 2208, 4004*	46.308	98.105	70.528	-	70.528	96.339	83.499	43.653	26.693	Continuing	Continuing
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	4.788	38.389	14.111	-	14.111	4.844	3.844	3.918	4.001	Continuing	Continuing
• OPN / 5664: *Surface Training Equipment*	0.000	0.000	4.733	-	4.733	4.010	0.000	0.000	0.000	0.000	8.743

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3179 / *CVN-79 Total Ship Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The CVN 78 is the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 class will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system (EMALS), advanced arresting gear (AAG) system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self-defense capability, increased launch and recovery capability / flexibility, increased operational availability, and increased flexibility to support future upgrades.

E. Performance Metrics

Successfully complete system development efforts for designated new and modified shipboard system, including developmental test and evaluation documents. Successfully complete design related activities associated with integration of new and modified shipboard systems into the ship, including developmental test and evaluation documentation. Successfully perform system design and analysis studies. Successfully support design integration and analysis. Successfully complete or support feasibility and tradeoff studies on new and modified shipboard systems, technologies, and proposed modifications. Studies shall include requirements and engineering analysis; identification of subsystem, integration, and logistics impacts; cost estimates; analysis of construction schedule impacts; and conduct / support of shipchecks. Successfully provide Manpower Workload Analysis associated with design and policy activities, and with integration of new and modified system/equipment. Successfully complete the development of multiple Business Case Analyses (BCAs) that demonstrate technology, process, requirements and / or infrastructure improvements that will reduce the man hours (or equivalent material costs) for CVN 79 Construction.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 3179 / *CVN-79 Total Ship Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Total Ship Integration	C/CPAF	HII : VA	77.802	9.367	Oct 2014	4.365	Nov 2015	6.633	Nov 2016	-		6.633	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC CARDEROCK : MD	12.330	1.012	Jan 2015	0.198	Nov 2015	0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC DAHLGREN : VA	9.058	1.608	Oct 2014	1.614	Oct 2015	1.700	Oct 2016	-		1.700	Continuing	Continuing	Continuing
Total Ship Integration	WR	NAWCAD PAX RIVER : MD	4.518	0.519	Oct 2014	1.885	Oct 2015	1.268	Oct 2016	-		1.268	Continuing	Continuing	Continuing
Total Ship Integration	WR	SPAWAR : SD	3.827	0.338	Nov 2014	0.269	Nov 2015	0.300	Nov 2016	-		0.300	Continuing	Continuing	Continuing
Total Ship Integration	C/CPFF	NAVSEA SEAPORT : DC	21.014	2.045	Dec 2014	2.000	Dec 2015	1.950	Dec 2016	-		1.950	Continuing	Continuing	Continuing
Total Ship Integration	C/CPAF	RAYTHEON : MA	7.320	1.625	Jan 2015	1.556	Dec 2015	1.815	Dec 2016	-		1.815	Continuing	Continuing	Continuing
Total Ship Integration	WR	SSC CHARLESTON : SC	0.671	0.127	Oct 2014	0.000		0.000		-		0.000	0.000	0.798	-
Total Ship Integration	C/CPFF	SAIC : VA	1.445	0.000		0.000		0.000		-		0.000	0.000	1.445	-
Total Ship Integration	Various	NSRP : Various	10.586	1.670	Mar 2015	0.000		1.670	Dec 2016	-		1.670	Continuing	Continuing	Continuing
		Subtotal	148.571	18.311		11.887		15.536		-		15.536	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPAF	HII : VA	0.000	0.000		0.220	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC CARDEROCK : MD	4.721	0.000		0.000		0.000		-		0.000	0.000	4.721	-
Developmental Test & Evaluation	WR	NUWC NEWPORT : RI	0.123	0.000		0.018	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC DAHLGREN : VA	0.000	0.188	Oct 2014	0.934	Nov 2015	1.188	Nov 2016	-		1.188	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NAVFAC LANT : VA	0.000	0.000		0.105	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 3179 / *CVN-79 Total Ship Integration*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	TBD	MISCELLANEOUS : TBD	0.000	0.000		0.000		0.127	Nov 2016	-		0.127	Continuing	Continuing	Continuing
Operational Test & Evaluation	C/CPFF	FLC : VA	0.176	0.000		0.223	Dec 2015	0.230	Dec 2016	-		0.230	Continuing	Continuing	Continuing
		Subtotal	5.020	0.188		1.500		1.545		-		1.545	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Defense Acquisition Workforce	Various	Various : Misc	0.181	0.000		0.000		0.000		-		0.000	0.000	0.181	-
		Subtotal	0.181	0.000		0.000		0.000		-		0.000	0.000	0.181	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	153.772	18.499		13.387		17.081		-		17.081	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		**Date:** February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3179 / *CVN-79 Total Ship Integration*

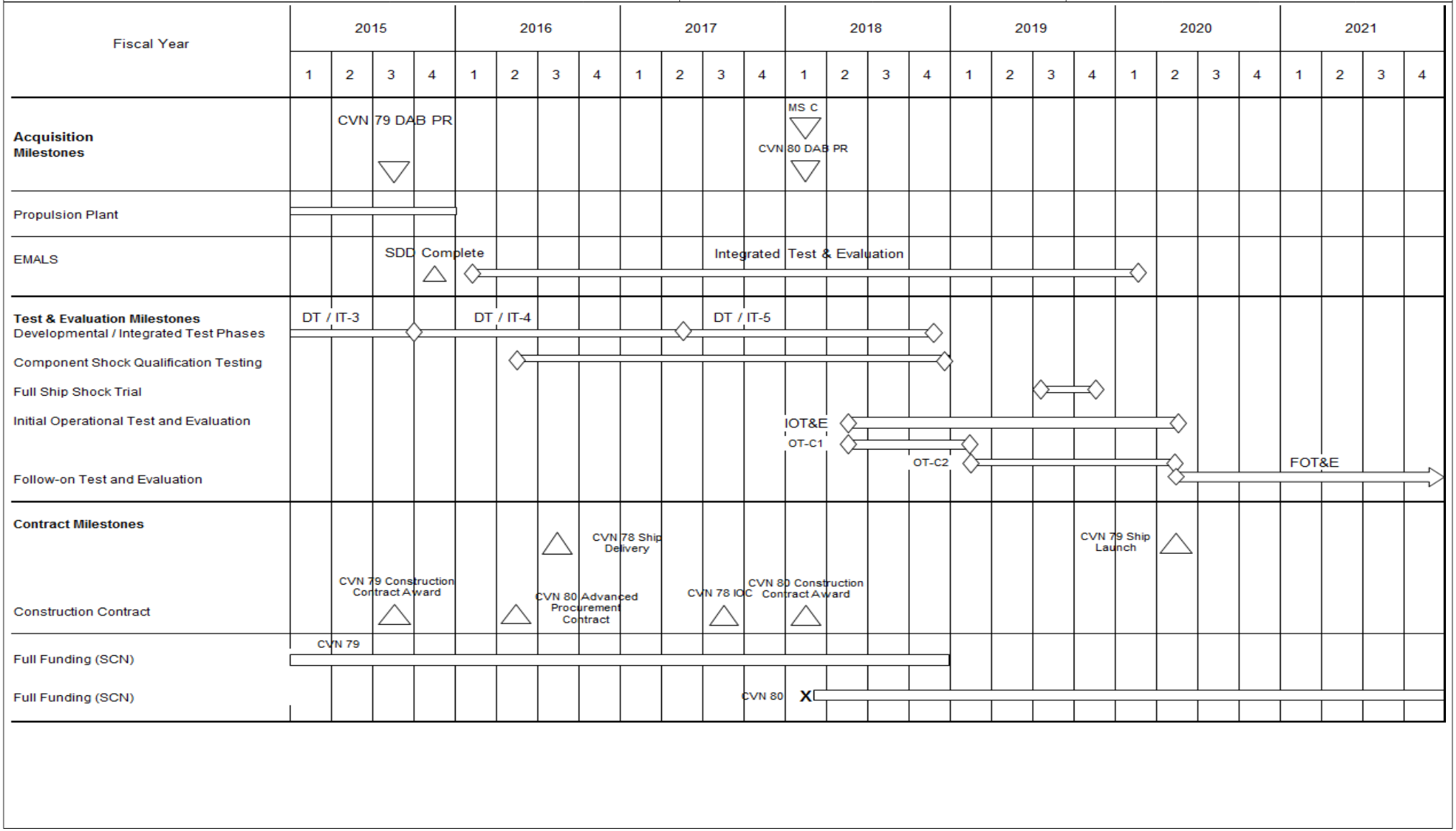


Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3179 / *CVN-79 Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3179				
CVN 79 DAB PR	3	2015	3	2015
CVN 80 DAB PR	1	2018	1	2018
Milestone C	1	2018	1	2018
Propulsion Plant	1	2015	4	2015
EMALS SDD Complete	4	2015	4	2015
EMALS Integrated Test & Evaluation (IT&E)	1	2016	1	2020
DT/IT -3- Developmental Test / Integrated Test Phase 3	1	2015	3	2015
DT/IT -4- Developmental Test / Integrated Test Phase 4	4	2015	2	2017
DT/IT -5- Developmental Test / Integrated Test Phase 5	2	2017	4	2018
Component Shock Qualification Testing	2	2016	4	2018
Full Ship Shock Trial	3	2019	4	2019
Initial Operational Test & Evaluation	2	2018	2	2020
OT-C1 - Initial Operational Test & Evaluation - Phase C1	2	2018	1	2019
OT-C2 - Initial Operational Test & Evaluation - Phase C2	1	2019	2	2020
FOT&E - Follow-On Test & Evaluation	2	2020	4	2021
CVN 78 Ship Delivery	3	2016	3	2016
CVN 78 Initial Operational Capability (IOC)	3	2017	3	2017
CVN 79 Construction Contract Award	3	2015	3	2015
CVN 80 Advanced Procurement Contract Award	2	2016	2	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2015	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3179 / *CVN-79 Total Ship Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CVN 79 Ship Launch	2	2020	2	2020
CVN 80 SCN Full Funding	1	2018	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 3369 / *Hybrid Electric Drive*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3369: *Hybrid Electric Drive*	0.000	7.814	3.773	1.691	-	1.691	1.503	1.439	1.374	1.412	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes the DON Energy Initiative related to the DDG 51 Hybrid Electric Drive to reduce DDG 51 Class ship energy consumption and increase mission effectiveness through longer time on station. This project supports propulsion at low ship speeds without the need for LM 2500 main engines. Fuel savings from the Hybrid Electric Drive system will be achieved by utilizing fewer gas turbines for propulsion and ship service power generation while also loading gas turbines generators at a more efficient operating load. Provides critical foundation for SECNAV and CNO objectives to achieve greater Navy-wide energy security.

Note: FY 2014 and prior year funding is resourced under project 1803 in this program element.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: DON Energy Initiative	7.814	3.773	1.691	0.000	1.691
Articles:	-	-	-	-	-
Description: This project is a DON Energy Initiative related to the DDG 51 Hybrid Electric Drive (HED) to reduce DDG 51 Class ship energy consumption and increase mission effectiveness through longer time on station.					
FY 2015 Accomplishments: Complete Machinery Control System (MCS) integration development and environmental qualification testing. Continued training, integrated logistics support (ILS), and ship integration design development (efforts continued from those resourced under project 1803). Begin Land Based Engineering Sites (LBES) Installation and Checkout of the pre-production unit.					
FY 2016 Plans: Complete MCS software development. Complete Land Based Engineering Sites (LBES) Installation and Checkout of the pre-production unit. Commence initial LBES integration testing. Complete Integrated Logistics Support (ILS) certifications and ship design development.					
FY 2017 Base Plans: Validate the HED system performance during at-sea testing. Develop and test additional MCS software baselines.					
FY 2017 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3369 / *Hybrid Electric Drive*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	7.814	3.773	1.691	0.000	1.691

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN 0140: *Hybrid Electric Drive (HED)*	12.638	29.106	40.132	-	40.132	41.008	41.954	42.824	43.678	104.916	356.256

Remarks

D. Acquisition Strategy

A full and open competition with a Fixed Price Incentive Fee Contract awarded for the development, qualification, and delivery of the Engineering Development Models (EDM) Hybrid Electric Drive (HED) and the initial HED production shipsets for the DDG 51 Fleet Modernization Program.

E. Performance Metrics

Completion of Engineering Development Model (EDM) and complete fielding of First Article (FA) including contract award, design, manufacturing, and delivery. Completion of Factory Acceptance Test (FAT) and performance testing in Land Based Engineering Site (LBES). Commencement, completion, delivery and installation of Low Rate Initial Production (LRIP) units. Achieve fuel efficiency and increase on-station time.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3369 / *Hybrid Electric Drive*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DON Energy Initiave - OEM	C/FPIF	L-3 Maritime Systems : Leesburg, VA	0.000	2.337	Jan 2015	0.750	Jan 2016	0.400	Jan 2017	-		0.400	Continuing	Continuing	Continuing
		Subtotal	0.000	2.337		0.750		0.400		-		0.400	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
HED - DON Energy Initiative -OEM	WR	NSWC/SSES : Philadelphia, PA	0.000	5.152	Dec 2014	2.923	Dec 2015	1.291	Dec 2016	-		1.291	Continuing	Continuing	Continuing
HED - DON Energy Initiative -OEM	Various	SUPSHIP BATH : Bath, ME	0.000	0.325	Jan 2015	0.100	Jan 2016	0.000		-		0.000	0.000	0.425	-
		Subtotal	0.000	5.477		3.023		1.291		-		1.291	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.814		3.773		1.691		-		1.691	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3369 / *Hybrid Electric Drive*

Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
Acquisition Milestones - Project 3369	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Hybrid Electric Drive Contract Design & Production																												

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3369 / *Hybrid Electric Drive*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3369				
Hybrid Electric Drive Contract Design and Production	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 3374 / *MPF(F)*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3374: *MPF(F)*	0.000	0.000	0.000	0.694	-	0.694	0.463	0.000	0.000	0.000	0.000	1.157
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3374 - Maritime Prepositioning Force (Future) - MPF(F) - Concept studies, preliminary, contract designs and technology development and testing leading to detail design, and construction award of ship systems for the initial operational capability milestone achievement that will provide a highly flexible, operational and logistics support
capability to enable Expeditionary Maneuver Warfare concepts and to meet required operational capabilities with respect to Force Closure, Amphibious Task Force Integration, Sustainment and Reconstitution/Redeployment.

FY 2016 and prior year efforts were financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3110 (Maritime Prepositioning Force (Future)). FY 2015 NDSF BA 04 Project 3110 amount: $8.454M. FY 2016 NDSF BA 04 Project 3110 amount: $1.768M. This project is not a new start

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Engineering and Acquisition Support	0.000	0.000	0.694	0.000	0.694
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: FY17 - Continue tracking execution of Test and Evaluation schedule to Test and Evaluation Master Plan (TEMP) - Complete Initial Operational Test and Evaluation (IOT&E) Phase 2 for Expeditionary Mobile Base (ESB) - Complete Total Ship Survivability Trial (TSST) and Final Survivability Assessment Report (FSAR) for Expeditionary Transfer Dock (ESD) Live Fire Test and Evaluation (LFT&E) - Perform ESB Final Operational Test and Evaluation (FOT&E)					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.694	0.000	0.694

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3374 / *MPF(F)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• NDSF/0401: *MPF MLP Acquisition*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,551.684
• SCN/3039: *Afloat Forward Staging Base*	0.000	635.000	0.000	-	0.000	27.000	0.000	0.000	0.000	0.000	1,241.300

Remarks

D. Acquisition Strategy

To supplement the current maritime prepositioning force, and to provide in theater capability to support resupplying a Maritime Expeditionary Brigade, the Department is procuring 2 Expeditionary Transfer Dock (ESD, formerly MLP)in FY11, and three (one each in FY12, FY14 and FY16) Expeditionary Mobile Base (ESB, formerly MLP AFSB Variant configuration).

E. Performance Metrics

Annual Program Review

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3374 / *MPF(F)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WR	COTF : Norfolk, Virginia	0.000	0.000		0.000		0.290	Jan 2017	-		0.290	0.482	0.772	-
Live Fire Test & Evaluation	WR	CSC : Washington DC	0.000	0.000		0.000		0.100	Jan 2017	-		0.100	0.000	0.100	-
Developmental Test & Evaluation	WR	CSC : Washington DC	0.000	0.000		0.000		0.304	Jan 2017	-		0.304	0.000	0.304	-
		Subtotal	0.000	0.000		0.000		0.694		-		0.694	0.482	1.176	-

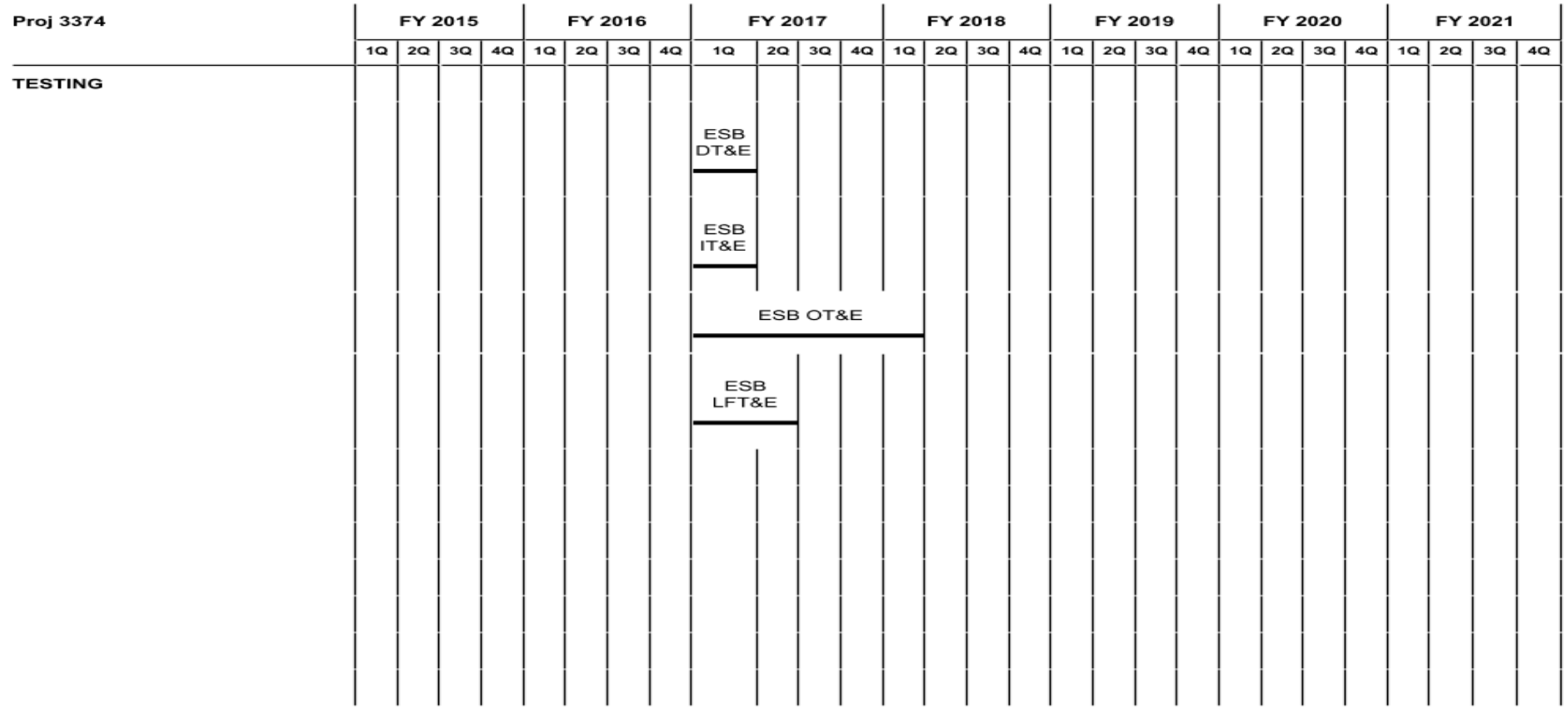
Remarks

Award dates reflect initial award of incremental execution.

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		0.694		-		0.694	0.482	1.176	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3374 / *MPF(F)*



2017PB - 0604567N - 3374 NOTE: FY 17 and out are continuation of testing events which were previously funded in NDSF PE 0408042N Project 3110.

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 3374 / *MPF(F)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3374				
TESTING: ESB DT&E	1	2017	1	2017
TESTING: ESB IT&E	1	2017	1	2017
TESTING: ESB OT&E	1	2017	1	2018
TESTING: ESB LFT&E	1	2017	2	2017

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / *Ship Contract Design/ Live Fire T&E*	Project (Number/Name) 4007 / *CVN 21 LFT&E*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
4007: *CVN 21 LFT&E*	58.291	3.391	4.208	3.736	-	3.736	3.940	4.041	4.131	4.221	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 223

A. Mission Description and Budget Item Justification

This project encompasses Live Fire Test and Evaluation (LFT&E) efforts for the CVN 78 Class. Title 10, US Code, Section 2366, CVN 21 Operational Requirements Document (ORD) and the CVN 78 Class Test and Evaluation Master Plan (TEMP) 1610 prescribe requirements for LFT&E. The purpose of LFT&E is to evaluate covered systems in a realistic combat environment before proceeding beyond low-rate initial production. Since the application of the survivability testing required by 10 USC 2366 to a CVN 78 Class ship would be unreasonably expensive and impractical, the Secretary of Defense waived the live fire testing requirement in 2004 and submitted a certification of that determination to Congress. The CVN 78 Class LFT&E Management Plan details the testing, modeling and simulation, and engineering analyses that are being used to determine whether CVN 78 Class ships will be able to survive and carry out their missions against the threat weapons identified in the Surface Ship Capstone System Threat Assessment Report (CSTAR) that are likely to be encountered in combat. The results of these tests and analyses are documented in periodic Vulnerability Assessment Reports (VARs).

The CVN 78 Class VAR 3 was completed in the summer of 2007 and the CVN 78 Class VAR 4 is scheduled to be completed in FY 16.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CVN 21 LFT&E	3.391	4.208	3.736	0.000	3.736
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Completed the SVM analyses and documented the findings and results of the AIREX threats described in Critical LFT&E Issues IA 1-8 in the draft VAR 4. Using the enhanced CVN 78 full-ship structural Finite Element Model (FEM), commenced the Modeling & Simulation (M&S) Analytical Bridge studies of the CVN 78's response to Underwater Explosive (UNDEX) events. These studies were used to establish a bridge from the results of the surrogate live fire tests of scaled models of selected ship sections to the analytical results of the full-ship CVN 78 to similar UNDEX events. These studies were also used for Verification and Validation of the M&S tools, leading to increased confidence in the M&S results. Began planning for the CVN 78 Total Ship Survivability Trial (TSST), which is a full-ship, full-crew validation of previous Damage Scenario Based Engineering Analysis (DSBEA) assessments of the capabilities of the ship design to facilitate the crew's ability to contain the damage and restore mission capability after a weapon hit.					
FY 2016 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 4007 / *CVN 21 LFT&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue using the enhanced CVN 78 full-ship structural FEM to support the accomplishment of the M&S Analytical Bridge studies of the CVN 78's response to UNDEX events. Continue planning for the CVN 78 TSST, which includes continuing to update the DSBEAs selected as TSST scenarios and beginning the development of the TSST drill guides. ***FY 2017 Base Plans:*** Continue using the enhanced CVN 78 full-ship structural FEM to support the accomplishment of the M&S Analytical Bridge studies of the CVN 78's response to UNDEX events. Finalize DSBEAs utilized for TSST Scenarios #3 and #4. Continue developing TSST procedures and implementation guides in support of an FY 18 TSST execution. Purchase majority of equipment that will be required for TSST in FY 18. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	3.391	4.208	3.736	0.000	3.736

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	60.459	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,526.813
• SCN / 2001: *Carrier Replacement Program*	1,219.425	2,431.929	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	Continuing	Continuing
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	663.000	123.760	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,374.860
• RDTEN / 0604112N: *Project Units 2208, 4004*	46.308	98.105	70.528	-	70.528	96.339	83.499	43.653	26.693	Continuing	Continuing
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	4.788	38.389	14.111	-	14.111	4.844	3.844	3.918	4.001	Continuing	Continuing
• OPN /5664: *Surface Training Equipment*	0.000	0.000	4.733	-	4.733	4.010	0.000	0.000	0.000	0.000	8.743

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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D. Acquisition Strategy

The CVN 78 is the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system (EMALS), advanced arresting gear (AAG) system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self-defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

E. Performance Metrics

Complete: (1) the adjudication of final comments and updates to the CVN 78 Class LFT&E Management Plan, Revision B and route for signature; (2) the refinement of the CVN 78 structural FEM, in support of the Analytical Bridge analyses; and (3) the analyses and documentation for VAR 4 and route for signature.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 4007 / *CVN 21 LFT&E*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation	WR	NSWC Carderock : MD	50.601	1.833	Jan 2015	2.857	Nov 2015	1.923	Nov 2016	-		1.923	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	C/CPAF	HII : VA	7.527	1.505	Nov 2014	1.291	Nov 2015	1.751	Nov 2016	-		1.751	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NSWC Dahlgren : VA	0.153	0.053	Jan 2015	0.060	Nov 2015	0.062	Nov 2016	-		0.062	Continuing	Continuing	Continuing
		Subtotal	58.281	3.391		4.208		3.736		-		3.736	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Defense Acquisition Workforce	TBD	Various : Various	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
		Subtotal	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-

	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	58.291	3.391		4.208		3.736		-		3.736	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		**Date:** February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 4007 / *CVN 21 LFT&E*

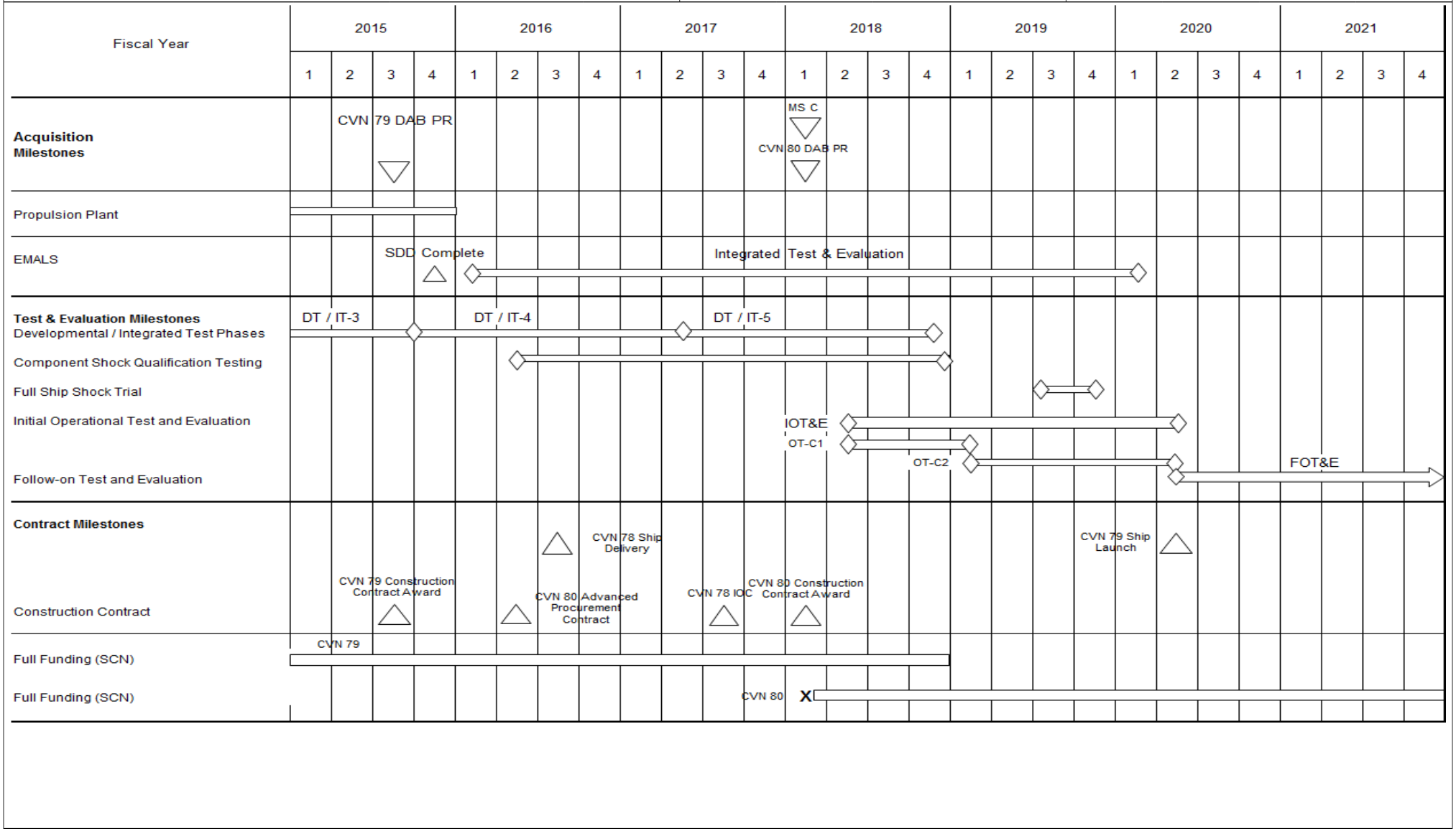

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 4007 / *CVN 21 LFT&E*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4007				
CVN 79 DAB PR	3	2015	3	2015
CVN 80 DAB PR	1	2018	1	2018
Milestone C	1	2018	1	2018
Propulsion Plant	1	2015	4	2015
EMALS SDD Complete	4	2015	4	2015
EMALS Integrated Test & Evaluation (IT&E)	1	2016	1	2020
DT/IT -3- Developmental Test / Integrated Test Phase 3	1	2015	3	2015
DT/IT -4- Developmental Test / Integrated Test Phase 4	4	2015	2	2017
DT/IT -5- Developmental Test / Integrated Test Phase 5	2	2017	4	2018
Component Shock Qualification Testing	2	2016	4	2018
Full Ship Shock Trial	3	2019	4	2019
Initial Operational Test & Evaluation	2	2018	2	2020
OT-C1 - Initial Operational Test & Evaluation - Phase C1	2	2018	1	2019
OT-C2 - Initial Operational Test & Evaluation - Phase C2	1	2019	2	2020
FOT&E - Follow-On Test & Evaluation	2	2020	4	2021
CVN 78 Ship Delivery	3	2016	3	2016
CVN 78 Initial Operational Capability (IOC)	3	2017	3	2017
CVN 79 Construction Contract Award	3	2015	3	2015
CVN 80 Advanced Procurement Contract Award	2	2016	2	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2015	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604567N / *Ship Contract Design/ Live Fire T&E*	**Project (Number/Name)** 4007 / *CVN 21 LFT&E*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CVN 79 Ship Launch	2	2020	2	2020
CVN 80 SCN Full Funding	1	2018	4	2021

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